



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/090,112

03/04/2002

Monique Barbanson

14531.148

3597

47973

7590

07/18/2008

WORKMAN NYDEGGER/MICROSOFT  
1000 EAGLE GATE TOWER  
60 EAST SOUTH TEMPLE  
SALT LAKE CITY, UT 84111

EXAMINER

NEWLIN, TIMOTHY R

ART UNIT

PAPER NUMBER

2623

MAIL DATE

DELIVERY MODE

07/18/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/090,112	<b>Applicant(s)</b> BARBANSON ET AL.	
	<b>Examiner</b> Timothy R. Newlin	<b>Art Unit</b> 2623	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 10 May 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,3,9,11-13,22,24-27,29 and 35 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3,9,11-13,22,24-27,29 and 35 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Response to Amendment*

Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection. RCE of 5/10/08 is noted.

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rodriguez et al., U.S. Pub. No. 2002/0009149 in view of Brooks, U.S. Patent No. 7,143,432.

3. Regarding claim 1, Rodriguez discloses, in a system including a client that has a connection with a source, wherein the connection has a bandwidth and wherein the client has a memory, a method for displaying a video stream without suppressing the video stream, the method comprising:

the client connecting with the source to select and receive a video stream [para. 32], the video stream being in the MPEG format [para. 61];

decoding and processing the video stream received by the client from the source, wherein memory and resources of the client are required to decode and process the video stream **[para. 44]**;

monitoring the memory and resources of the client as the video stream is decoded and processed to ensure that the client has sufficient memory and resources to decode and process the video stream **[memory and bus bandwidth are continually computed and updated, para. 74, para. 57]**; and

upon determining that the client lacks sufficient memory and resources to decode and process the video stream, the client requesting that the source transmit only specified key frames of the MPEG video stream **[the system can specify that only frames that can be decompressed within the available bandwidth should be transmitted, para. 72, e.g.]**; and

wherein the client request to transmit only specified key frames causes the source to determine, for each frame in the video stream, whether a frame in the video stream is one of the specified key frames and which further causes the source to transmit the frame to the client when it is determined that the frame is one of the specified key frames and to drop the frame from the video stream being transmitted to the client when it is determined that the frame is not one of the specified key frames **[each respective B-frame or P-frame is either transmitted or skipped, based on a determination of whether that frame should be dropped or skipped under the particular constraint mode of operation, para. 77; a table specifies bandwidth required for each**

**respective B-frame, allowing the system to either drop or transmit frames that are within the specified “safe” value, paras. 72, 74].**

Rodriguez drops MPEG frames as discussed above, but does so after they have already been transmitted from the server. The video decoder drops frames from the received bitstream by electing not to decode and transmit them to the display pipeline 85. I.e. in Rodriguez, the “source” that determines whether to drop or transmit frames is the video decoder. By contrast, amended claim 1 recites a server as the source that transmits only certain frames. Thus, Rodriguez teaches the claimed functionality but does not disclose a server as the source. Brooks does teach a server that transmits video to clients **[server is described at Figs.1 and 2, col. 4, 48-53; col. 7, 4-11; col. 8, 7-11]**. Furthermore, the video may be formatted in MPEG before transmission from the gateway to the client **[cols. 9-10, lines 63-10]**.

Given the structure disclosed by Brooks and the functionality taught in Rodriguez, it would have been obvious to one of ordinary skill in that the references could be combined. One need only apply the disclosed frame dropping technique between the server and client, rather than within the client itself. The advantage is the same in both cases: rather than being suppressed completely, content can be transmitted—albeit at lower quality—over a bandwidth limited path.

4. Regarding claim 3, Rodriguez discloses a method wherein the specified key frames consist of all the intra frames and some of the predictive frames in the video stream **[decoder processes some or all of the I and P frames, para. 58]**.

5. Claims 9, 11-13, 22, 24-27, and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brooks et al., US 7,143,432 in view of Rodriguez et al., US 2002/0009149.

6. Regarding claims 9 and 22, Brooks discloses, in a system that receives a video stream from a source over a connection that has a connection bandwidth, a method for displaying the video stream when the video stream requires more bandwidth than connection bandwidth, the method comprising:

connecting with the source to select and receive a video stream in the MPEG format, wherein the video stream is available in one or more versions and wherein each version requires a different bandwidth **[different versions are available with varying required bandwidth, col. 10, 1-10; see cols. 6-7, lines 24-3 for version descriptions];**

upon determining that the connection bandwidth is insufficient to support the bandwidth required by the selected video stream, the client requesting that the source transmit only specified key frames of the MPEG video stream, wherein the client request to transmit only specified key frames causes the source to determine, for each frame in the video stream, whether a frame in the video stream is one of the specified key frames and which further causes the source to transmit the frame to the client when it is determined that the frame is one of the specified key frames and to drop the frame

from the video stream being transmitted to the client when it is determined that the frame is not one of the specified key frames **[requesting device may request specific bandwidth parameters such as frame rate, cols. 9-10, 63-9. Based on the request, the transcoder 500 may transmit only key (i.e. minimally necessary for a viewable display) frames, such as every 10 of 11 frames, and drop non-key frames, such as every 11th frame. Or it may transmit certain key frames twice, depending on the incoming and desired frame rate, col. 12, 51-63. Each frame of a specified frame number is either dropped or not dropped based on the client's request].**

7. Brooks does not state which types of frames are to be omitted in order to adjust the required bandwidth of the video stream. Rodriguez teaches that at least some of the intra-frames are downloaded and processed as key frames in a bandwidth-constrained scenario **[decoder processes some or all of the I and P frames, para. 58]**. Rodriguez discusses the fact that intra-frames are essential, being necessary to construct subsequent P or B frames **[col. 7, et seq.]** It would have been obvious to one skilled in the art to combine the teachings of Brooks and Rodriguez because I frames are the minimal requirement to provide the user with a viewable signal while conserving as much bandwidth as possible.

8. In addition, Brooks teaches that the method of processing streaming video can be implemented in software running on a computer **[col. 7, 41-45; col. 8, 7-13]**.

9. Regarding claims 11 and 24, Brooks discloses a method as defined in claim 9, further comprising assessing available memory of a set top box, wherein the available memory of the set top box affects which version of the video stream is selected by the set top box **[gateway assesses format requirements of receiving devices such as set top box, col. 10, 33-46; format requirements include stb memory, col. 6, 27-31]**.

10. Regarding claim 12 and 25, Brooks discloses a method wherein negotiating with the source such that only key frames of the selected version of the video stream are downloaded from the source further comprises renegotiating which frames are downloaded from the source if the connection bandwidth changes **[frame parameters can be dynamically adjusted in response to fluctuating bandwidth during transmission, claim 16, last two limitations]**.

11. Regarding claims 13 and 26, Brooks discloses a method as defined in claim 12, wherein negotiating with the source such that only key frames of the selected version of the video stream are downloaded from the source further comprises:

monitoring the connection bandwidth **[gateway monitors bandwidth requirements of client, col. 10, 63-3]**; and

negotiating with the source such that the frames downloaded to the set top box depend on how much connection bandwidth is available **[frame parameters can be**



**dynamically adjusted in response to fluctuating bandwidth during transmission, claim 16, last two limitations; cols. 12-13, 44-11].**

12. Regarding claims 22 and 24-26, Brooks discloses their substantive limitations as discussed above. In addition, Brooks teaches that the method of processing streaming video can be implemented in software running on a computer **[col. 7, 41-45; col. 8, 7-13]**.

13. Regarding claim 27, Rodriguez discloses, in a set top box that has a memory and a connection with a video stream source, a method for displaying a video stream when the memory of the set top box and a bandwidth of the connection do not support displaying the video stream, the method comprising:

connecting with the video stream source in order to access and display a video stream **[DHCT is connected with headend, para. 30]**;

downloading the selected video stream **[DHCT 16 receives video signals from a headend and connects to a display, para. 32]**;

monitoring the memory of the set top box as the selected video stream is decoded, wherein only key frames of the video stream are decoded if the memory is insufficient to decode the entire selected video stream **[memory and bus bandwidth are continually computed and updated, para. 74, para. 57]**; and

Rodriguez does not explicitly describe negotiation of frame parameters based on bandwidth. Brooks teaches monitoring the bandwidth of the connection between the set

top box and the source, wherein the set top box negotiates with the source to only download key frames of the video stream if the bandwidth of the connection does not support the selected video stream **[frame parameters can be dynamically adjusted in response to monitored bandwidth during transmission, claim 16, last two limitations; cols. 12-13, 44-11]**. Rodriguez does discuss bandwidth limitations in the context of streaming video **[paras. 57, 74]**. Thus, it would have been obvious to one of ordinary skill in the art to modify Rodriguez with the teaching of Brooks to monitor bandwidth in order to adjust download parameters, providing the user with the highest-quality video that fully utilizes but does not exceed available bandwidth.

14. Brooks also does not state which types of frames are to be omitted in order to adjust the required bandwidth of the video stream. Rodriguez teaches that at least some of the intra-frames are downloaded and processed as key frames in a bandwidth-constrained scenario **[decoder processes some or all of the I and P frames, para. 58]**. Rodriguez discusses the fact that intra-frames are essential, being necessary to construct subsequent P or B frames **[col. 7, et seq.]** It would have been obvious to one skilled in the art to combine the teachings of Brooks and Rodriguez because I frames are the minimal requirement to provide the user with a viewable signal while conserving as much bandwidth as possible.

15. In addition, Brooks teaches that the method of processing streaming video can be implemented in software running on a computer **[col. 7, 41-45; col. 8, 7-13]**.

16. Regarding claim 29, Brooks discloses a method wherein the selected video stream requires a bandwidth that is greater than the bandwidth of the connection between the set top box and the source **[cols. 18-19, 63-16]**.

17. Claim 35 is rejected under 35 U.S.C. 103(a) as being unpatentable over Brooks et al., US 7,143,432 in view of Rodriguez et al., US 2002/0009149, and further in view of Aharoni et al., US 6,014,694. Brooks and Rodriguez disclose the client receiving only specified key frames of a first version of a video stream as discussed above. However, neither reference teaches sending a different, lower quality version. Aharoni teaches a client determining that connection bandwidth is insufficient **[col. 11, 37-44; col. 13, 29-36; col. 17, 51-67]** and requesting that the server transmit a second, lower quality (i.e. requiring less bandwidth) version **[cols. 11-12, 66-9]**. Aharoni is also analagous to Brooks and Rodriguez in that it teaches dropping certain frames to conserve bandwidth **[e.g., col. 9, 44-48]**. It would have been obvious to one of ordinary skill in the art to combine Brooks and Rodriguez with Aharoni, in order to match image quality of video data within a widely varying available bandwidth from client to client **[see Aharoni col. 2, 44-49]**.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy R. Newlin whose telephone number is (571) 270-3015. The examiner can normally be reached on M-F, 8-5 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chris Kelley can be reached on (571) 272-7331. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Chris Kelley/  
Supervisory Patent Examiner, Art  
Unit 2623

TRN